Wayne County Gem and Mineral Club News

August, 2016 **Always Looking for Places to Dig!**

Record heat, record attendance for the club picnic (more pictures inside)

http://www.wcgmc.org/

August Birthstone

Peridot

Bill Lesniak helps two youngsters build rock and mineral kits at Sonnenberg Gardens. (see page 4)

AUGUST FIELD TRIPS

August 7th (Sunday) – Green's Landing

A joint trip with Rochester Academy of Science to collect Middle Devonian fossils. (Leader - Stephen Mayer)

August 16th (Tuesday) – Herkimer

Tentative trip to Ace of Diamonds if enough express interest. *Contact Bill Chapman*

August 20th (Saturday) – fossils

Multiple site trip (Canandaigua, Bristol, Honeoye) to collect Devonian fossils. Meet in Canandaigua, see page 7 for details. *Contact Bill Chapman*

August 13th-21st - Canada

Several of us are joining the Niagara Peninsula Geological Society for a week long trip to Thunder Bay, Ontario with stops in route.

September 15-18 in the Adirondacks:

We are planning a 3-4 day long weekend trip to the southeast Adirondacks (Star Lake area). Details still pending. Let Fred Haynes know if you wish to be included in communications on this trip.

See page 7 for more on all these trips or contact the listed leader for each.

Fall WCGMC Meetings

Our monthly meeting routine will resume on **Friday September 9th** at the Park Presbyterian Church, Maple Court, Newark, NY.

We meet at 7:00 PM, but folks start arriving early to socialize and share mineral stories.

September Program: "Rock Potpourri"
Presented by: Dave Millis

As it will be the first meeting after a busy collecting season we also hope all of you will bring your summer finds to show and share and maybe trade.

Mark your calendars for each second Friday of the month after September, including the famous Holiday Party on December 9th. That is one event you will not want to miss.

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A big thank you goes to Stephen Mayer for his contribution on his summer collecting for this month's newsletter (page 2). Who is up for next month? Send me you thoughts and/or your pictures. They need not be formally written. I can help script or edit as needed. Help us build a better newsletter!
Fred Haynes – fredmhaynes55@gmail.com

Trilobites to Tertiary Topaz

By Stephen Mayer

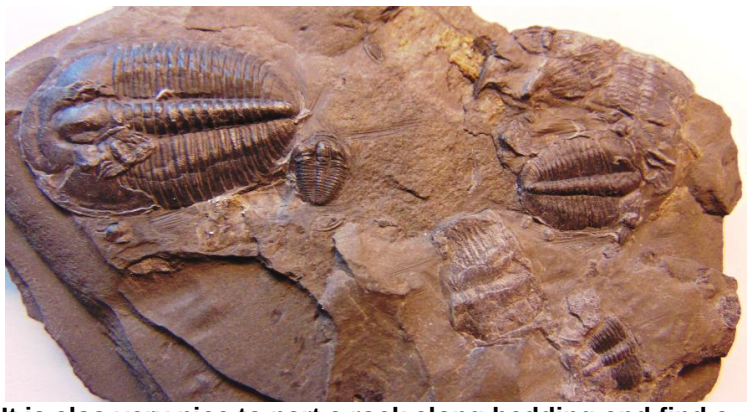
Tammy and I are back from a vacation in the desert southwest. Naturally, we took some time between visits to National Parks to do a little fossil and mineral collecting in Utah. The setting and geology are quite different than in western New York.

Very thick shale and calcareous mudstones are widespread in Millard County, west-central Utah and contain some of the best Cambrian biotas in the world. Not only are there 505-520 million year old fossils abundant, but also recent volcanism in the same region has left its mark with abundant rocks and minerals. Specifically, well preserved trilobites and beautiful topaz crystals can be collected.

Examples of the three common species that Tammy and I found at U-Dig-Fossils. Like some other Cambrian trilobites, the tiny *Peronopsis interstricta* had no eyes and were completely blind. Photos by S. Mayer

Early in human history, necklaces made of trilobites were regarded by the Pahvant Indians as "protecting the body from sickness and weapons of death as long as a man's heart is pure" (Robison, Babcock, and Gunther, 2015). Early geologists extensively studied the stratigraphy and paleontology of the region. In the 1870's Army Lieutenant George Wheeler named a bowl-shaped area in the House Range the Wheeler Amphitheater and comprising the Wheeler Shale. Subsequently from the 1880's –1900's Charles Walcott (born in Upstate New York and employed by James Hall) published many reports of the rocks and fossils of the Cambrian strata (i.e. Walcott, 1886, 1890). Today there are numerous private and public enterprises with land claims near Delta, Utah to collect these fossils.

U-Dig Fossils is probably the best known of these quarries. About 32 miles west of Delta and 20 miles north on a maintained gravel road, is a small shed adjacent to a cliff face. For a small fee, amateurs and professionals can collect trilobites. Pickings are easy, all one needs to do is look at their feet, but if one prefers, they can remove new blocks of rock from the outcrop. The trick is not finding a trilobite but instead finding that perfect specimen. In a four hour period, hundreds of partial trilobites will be seen, and maybe 3-5 really nice examples can be collected. *Elrathia kingii, Asaphiscus wheeleri* and *Peronopsis interstricta* are all fairly common and we found examples of each However, *Bolaspidella housensis, Altiocculus harrisi,* and *Olenoides nevadaensis* are quite rare. The majority of the trilobite fossils uncovered are molts, however, complete, immature (1-2 mm) to adult (2 cm) forms are there for the persistent collector. Additionally, lingulid brachiopods, Phyllocarids, and algae (black polka dots on the shale) can be found.



It is also very nice to part a rock along bedding and find a trilobite mortality plate, in this case exposing several *Elrathia kingi.* Plate is 9 cm across. Photo by S. Mayer

Throughout western Utah, approximately 6-7 million years ago, volcanic rocks erupted spewing basaltic lava flows and building mountains composed of rhyolite. The most famous location is called Topaz Mountain which is about 2 hours northeast of U-Dig Fossils and 1½ hours northwest of Delta. This desert locality is truly in the "middle of nowhere". After traveling about 30 miles on a poorly maintained dirt road, it really becomes interesting. One can see the locality a mile away, but how does one get there? The answer is a dirt road of course. Well, that is until proceeding the first 20 feet and realizing the path is nothing more than a dry streambed. In places the path is as wide as a car but half of the width is at a 30 degree angle and the other half of the width is marked by large rocks and potholes. Certainly, speed is of the essence here and 1 mile consumes 1 hour!

An excellent guide meets the prospector (who has made prior arrangements and paid a nominal fee) at a 4-pole 10 ft by 10 ft sunshade. Together, they climb a rubble field of rhyolite, which has been previously blasted from the mountain. The companion dog seemingly unaware of the extremely steep rock face stays with the guide the entire time. Everyone is looking for beautifully terminated topaz crystals. They break open vugs in the rhyolite exposing amber colored crystals, the color imparted from gamma radiation emitted by uranium in the rocks. Although most crystals are small (less than a ¼ inch) a few reach lengths of an inch or more. Additionally quartz, calcite, garnet, hematite, obsidian, and other minerals occur on Topaz Mountain..

For additional information on collecting Cambrian trilobites and Tertiary Topaz in western Utah, several books are available including "Adventures in Millard County Utah, 2016 and www.millardcountytravel.com.

One of the better topaz we collected resting in a rhyolite vug and accompanied by calcite.
Photo by S. Mayer

References:

Robison, R.A., Babcock, L.E. and Gunther, V.G., 2015. Exceptional Cambrian Fossils from Utah: A Window into the Age of Trilobites, Utah Dept. of Natural Resources, Miscellaneous Pub. 15-1. Utah Geological Survey.

Walcott, C.D., 1886, Second Contribution on the Cambrian faunas of North America, USGS Bulletin #30, 369 p.

Walcott, C.D., 1890, Correlation Papers on the Cambrian, USGS Bulletin #81, 447 p.

Yes it was hot on July 23rd for our annual picnic, but that did not deter 44 club members from sharing a wonderful Saturday with friends. We sure have a lot of folks to thank.

- Thanks to Glenn and Eva Jane for sharing their home and yard with us for another year and for cooking the chicken and pototoes.
- Thanks to Linda for concocting the Rock Bingo game and selecting the club's polished slabs for the winners.
- Thanks to Ed for conducting the facteing demonstrations.
- Thanks to Fred for providing the door prize minerals and conducting the raffle.
- Thanks to Matt for the barrel rides to the fish pond.
- Thanks to Kathleen for bringing her accordion.
- And Thanks to all for the great food and friendship everyone brought to the event. Rest assured we will do it all over again next year !

NO EGGS, JUST ROCKS

July was a busy month for Bill Lesniak and his travelling rock and mineral kit stand. If you have not seen his operation, Bill sets up at whatever event will allow him and, on the behalf of WCGMC, offers free rock and mineral kits to youngsters. They do have to earn them though. They must cut out labels, display dexterity with glue sticks to apply them to the egg cartons he provides and then, with help, locate the 12 specimens (this summer: 6 rocks, 4 minerals and 2 fossils). In the end they go home with something that looks like this:

Over a 12 days span in mid-July, Bill made five stops. He could be found at the Walworth and Sodus Farmer's Market, right between the blueberries and the tomatoes. He visited the Ontario County 4-H at Beechwood State Park and the Canandaigua Boy Scouts. Finally, on Sunday July 24th, Bill was set up at Sonnenberg Gardens Summer Open House. All told over 180 children went home with rock and mineral collections from the five events. In the process they were introduced to the three basic rock types, saw carbonate minerals fizz in acid, learned what a horn coral is, and how biotite peels into neat sheets. We should acknowledge that while Bill was the mastermind behind the operation, he did have help. Fred Haynes, Rita and Amber Lesniak, John Murtha, Henry Becker and Cheyenne Daniels all chipped in at various sites to help with the creation and distribution of the kits.

Bill impressed the 4-H group so much that they responded with the note to the right.

Walworth Farmer's Market: John Murtha (green) and Henry Becker (red) assist Bill. Note the 12 bins on the left table containing the rocks and minerals each child must locate and select for their kit.

Yes, Bill wore a hard hat for the Sonneberg Gardens event. He is explaining a Devonian horn coral here while Rita Lesniak helps a group of eager youngsters prep their egg crates for their collection.

July 20, 2016

Dear Bill,

Thank you so much for the time you took out of your busy schedule to enrich the week for 4-H Camp Beechwood participants. They truly enjoyed learning about rocks and minerals. Thank you too for helping with fishing! Your support is appreciated and we hope to work with you again in the future!

Sincerely,

Amy Pyra

Jessica Spence

AUGUST BIRTHSTONE

Peridot

By Fred Haynes

Olivine is one the most common rock-forming silicate minerals on our glorious planet. It is found in iron and magnesium rich igneous rocks, both extrusive rocks like **basalt** (think Hawaii) and intrusive equivalents like **gabbro** and deep mantle rocks called **peridotite**.. When it is found transparent and unfractured, olivine can be faceted into a brilliant green gemstone. We call that gemstone peridot and it is the August birthstone.

Olivine Group minerals are nesosilicates, meaning that their mineral lattice consists of isolated silica tetrahedral that are connected by interstitial cations (most commonly iron and magnesium). This leads to the formula $(Mg, Fe)_2SiO_4$. End member Mg-bearing olivine is the mineral forsterite, while Fe-dominated olivine is the mineral fayalite. The term chrysolite is sometimes used to label intermediate composition olivine. Most olivine contains both magnesium and iron, but Mg-rich forsterite is more common than fayalite.

France and Niger have featured olivine and peridot on recent stamps. The French issue is part of a ten stamp mineral set issued earlier in 2016.

Pure forsterite is colorless and extremely rare. A small amount of iron will impart a yellow green color. Increasing iron content deepens the green and the value of peridot in gem quality specimens. Fayalite is generally yellow-brown to brown in color.

Olivine has a hardness of 6.5-7.0. It is not quite as hard as quartz, but it is harder than the various feldspar minerals. This means it is not a great gemstone for rings or bracelets, but it is hard enough for earrings and pendants.

With an orthorhombic mineral structure (3 parallel, but unequal crystal axes), peridot gemstones are often faceted into cushion or baguette forms to take advantage of the crystal structure.

Peridot gem cuts: The baguette cut stone o the left is from Burma. The cushion cut stone (right) is from Pakistan.

The next time you visit Hawaii make sure to collect some olivine! Olivine is one of the first silicate minerals to crystallize in a iron-magnesium rich (or mafic) magma. Mg-rich olivine will form at temperatures of 1600-1900° C. The magma from the Hawaiian volcanoes originates from a mantle hot spot deep beneath the island. The olivine crystals are actually floating in the magma when it surfaces and are then frozen into the fine-grained basalt groundmass.

The holes in this Hawaiian basalt are not gas vesicles. They once contained olivine crystals that have been plucked out.

No this picture of the Papakolea Green Sand Beach on the Big Island of Hawaii has not been color enhanced. The beach sand is practically all forsteritic olivine eroded from the islands massive basalts and concentrated by gravity separation. Although very small, some of the grains are gemmy enough to be called periodot. *Pictures from Hawaii Tourist sites*

The majority of North America's peridot gemstones come from the basalt flows of Peridot Mesa in the San Carlos Indian Reservation in Arizona. Although an estimated 85% of the world's gem peridot comes from Arizona, the absolute highest quality peridot has been found in Burma and more recently in Pakistan.

continued on page 6

Historically, peridot is one of the world's oldest gemstones, perhaps even the first. Its use as a gems can be traced to the Egyptian Empire as far back as 1500 B.C. and Cleopatra is known to have had a deep love for peridot during the final century B.C. Interestingly, the mining area for the Egyptian's peridot (Zabargad Island, formally St. John's Island In the Red Sea) is now under the Red Sea and inaccessible.

Egyptian peridot: The color, termination style and inclusion style of this 1.5 cm tall peridot identifies it as being from St. John's Island in the Red Sea. *Photo from Wikipedia common*

There are very few mafic igneous rocks in New York State and therefore very little forsterite/fayalite Olivine Group minerals. However forsterite can form during very high temperature metamorphism of magnesium – rich limestones. The well known Cascade Slide skarn near Keene in the Adirondacks contains forsterite in association with bright green diopside, brown augite, and grossular garnet.

When calcium occupies the interstitial site in the Olivine Group structure the mineral is monticellite. Monticellite is also found in the Cascade Slide altered marbles (Tracy, 1978).

References:

Gemselect.com: http://www.gemselect.com/other-info/about-peridot.php

Geology.com website: http://geology.com/minerals/olivine.shtml

Minerals.net website: http://www.minerals.net/mineral/olivine.aspx

Tracy, R. J., 1978, Monticellite marble at Cascade Mountain, Adirondack Mountains, NY, Amer. Mineralogist, v. 63, p. 991-999.

See Page 7 for more Peridots that are simply out of this world !

WCGMC Member August Birthdays

Henry Becker
Kathleen Cappon
Matt Weiler

Definitions of rocks containing olivine:

Basalt: A dark colored, fine grained igneous rock with high iron and magnesium content. Typical minerals include plagioclase, pyroxene, amphiboles and olivine. The most common volcanic rock on earth as the oceanic crust in almost totally comprised of basalt.

Gabbro: The coarse grained equivalent of basalt which forms when basaltic composition magma is trapped beneath the earth's surface and slowly cools allowing crystals of plagioclase, pyroxene and minor amphibole and olivine to form.

Peridotite: A coarse grained ingneous rock comprised mostly of olivine and pyroxene. Peridotite forms and is derived from the earth's upper mantle and is only found on surface when tectonic activity has carried the upper mantle rocks to the surface.

There were multiple requests for Rita Lesniak's wonderful orange dump cake at the picnic. Here is the recipe for all to enjoy.

Ingredients:

- 1 (18.25 oz.) package of orange cake mix
- 1 (3.4 oz.) package of French Vanilla instant pudding mix
- 2 (11 oz.) cans of Mandarin oranges, reserve the juice!
- Orange juice
- 3 eggs
- ½ cup of cold butter, thiny sliced
- ½ cup of butter cookie crumbs (optional)

- Dump dry cake mix and pudding mix into a mound in lightly greased 9" by 13" baking dish.
- Make a well in the center of the dry ingredients.
- Combine reserved juice from mandarin oranges with orange juice to measure 1 ½ cups liquid.
- Add eggs to juice and whisk until well-blended.
- Stir in mandarine oranges and spread mixture evenly in dish
- Arrange butter slices over the top.
- Sprinkle with cookie crumbs if desired.

BAKE: 45 minutes at **xxxx C**

WCGMC 2016 Field Trip Schedule

last update (7/25/2016)

Summer and fall planning: You should contact the trip leader for details and possible changes. Additional dates will be added with each newsletter, and on the website.

Remember to attend a WCGMC field trip you must be a club member, or a member of an affiliated club if you do not live in our region.

August 7 (Sunday) - Green's Landing – Middle Devonian fossil collecting East side of Canandaigua Lake
Joint trip with Rochester Academy of Science (we lead) (Leader – Stephen Mayer, 315-943-5058)
Meet at Deep Run Beach parking lot (4290 East Lake Road) at 9 AM, we will car pool ½ mile from there
Involves 1000' walk (15-20 minutes) up creek bed, water shoes a good idea

August 16 (Tuesday, tentative) – Ace of Diamonds for Herkimers. *Call Bill Chapman if interested.*

August 20 (Saturday) – Fossil Collecting- multiple sites: meet at CMAC/Finger Lakes CC **South** parking lot at 9 AM (approximately 4300 County Road 18). Collect there, also sites in Bristol and Honeoye. All sites are kid friendly, might need water shoes *(Leader – Bill Chapman)*

August 13-20 - Niagara Peninsular Geological Society trip to Thunder Bay Area. Several of us are planning to attend this week camping/collecting long trip to the northern shore of Lake Superior. Visit http://www.ccfms.ca/clubs/NPGS/trips.htm for some information or contact Fred Haynes.

Sept 15-18 (2-3-4 days your choice) – Valentine Mine on Friday Star Lake for Benson Mines on Saturday, Rose Road (including at night for fluorescent collecting!), Powers, Selleck Road and more.
Please let Fred Haynes know if you plan to attend. We have booked accommodation in a lakeside house in Star Lake.

Sept 22-25 (Buffalo Geol. Society) – To attend you must join BGS - 4 day trip to Cincinnati and 3 World Class fossil Locations (Napoleon and St. Paul Quarries in Indiana, Mt. Orab site for Isotelus, etc.) and maybe more

Oct 8-9: Walworth Quarry Open House – Sat. 7-2, Sun. 7-noon – *(Details to follow)*

More will be planned in the fall
Trips proposed include Deep Run, Indian Creek, perhaps Second Creek in Sodus. But don't be shy. Let us know where you want to go.

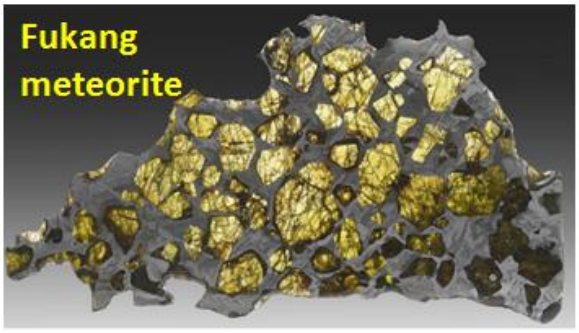
SHOWS and OTHER EVENTS TO KEEP ON YOUR RADAR in the next few months

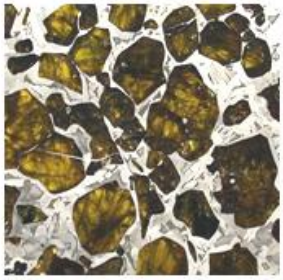
July 29-31 Paleontological Research Institute (PRI) Summer Symposium (seminar and field trips)
Visit the seminar website for details: https://www.priweb.org/events.php?page=summersymp

August 20-21 – St. Lawrence County Rock and Mineral Club Show --- NEW LOCATION in Canton, NY
visit http://www.stlawrencecountymineralclub.org/Library/2016_show.pdf for details

October 22-23 – Rochester Gem, Mineral, Jewelry and Fossil Show and Sale, sponsored by Rochester Lapidary Society, http://www.rochesterlapidary.org/show/index.htm

Olivine (and often wonderful gemmy peridot) are also found in certain meteorites called pallasites. These rare meteorites are composed of a stony iron-nickel matrix and as much as 40-50% olivine crystals.





One of the world's most famous pallasites was found in Fukang, China in 2000. The massive meterorite weighed over 1000 kg (2200 pounds). It has since been cut into smaller pieces.

Wayne County Gem & Mineral Contacts

ELECTED OFFICERS

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APPOINTED POSITIONS

Bill Chapman – Field Trip Chair
batnpill@empacc.net 607-868-4649
Fred Haynes – Newsletter Editor
fredmhaynes55@gmail.com 585-203-1733
Glenn Weiler – Workshop Coordinator
Linda Schmidtgall – Collection Curator

Club meets 2nd Friday of each month starting in Sept.
Social meeting at 6:30 PM.
Regular meeting at 7:00 PM
Park Presbyterian Church, Maple Court, Newark, NY
Website – http://www.wcgmc.org/

Dues are only $15 individual or $20 family for a full season of fun. Send to:
WCGMC, P. O. Box 4, Newark, NY 14513

Wayne County Gem and Mineral Club
P.O. Box 4
Newark, New York 14513

First Class: Dated Meetings & Time Valued
The Public is always welcome!